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**The feasibility and acceptability of a brief Acceptance and Commitment Therapy
(ACT) group intervention for people with psychosis: the ‘ACT for Life’ study**

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Abstract (249 words)

Background and Objectives

Acceptance and Commitment Therapy (ACT) is a contextual cognitive-behavioural approach with a developing evidence base for clinical and cost-effectiveness as an individually-delivered intervention to promote recovery from psychosis. ACT also lends itself to brief group delivery, potentially increasing access to therapy without inflating costs. This study examined, for the first time, the feasibility and acceptability of ACT groups for people with psychosis (G-ACTp).

Methods

Participants were recruited from community psychosis teams. Ratings of user satisfaction, and pre-post change in self-rated functioning (primary outcome), mood (secondary outcome) and ACT processes were all completed with an independent assessor. Of 89 people recruited, 83 completed pre measures, 69 started the four-week G-ACTp intervention, and 65 completed post measures.

Results

Independently assessed acceptability and satisfaction were high. Functioning (Coeff.= -2.4, $z=-2.9$, $p=0.004$; 95% CI: -4.0 to -0.8; within subject effect size (ES) $d=0.4$) and mood (Coeff.= -2.3, $z=-3.5$, $p=0.001$; 95% CI: -3.5 to -1.0; $d=0.4$) improved from baseline to follow-up. Commensurate changes in targeted ACT processes were consistent with the underlying model.

Limitations

The uncontrolled, pre-post design precluded blinded assessments, and may have inflated effect sizes. Participants may have improved as a result of other factors, and findings require replication in a randomized controlled trial (RCT).

Conclusions

This preliminary study showed that brief group ACT interventions for people with psychosis are feasible and acceptable. Uncontrolled, pre-post assessments suggest small clinical improvements, and changes in psychological processes consistent with an ACT model. Replication in an RCT is required, before implementation can be recommended.

Keywords: schizophrenia; cognitive therapy; community mental health; early psychosis; mindfulness; contextual behavioral science

1. Introduction

Psychotic disorders affect 3% of the population, and are associated with significant consequences and costs to sufferers, carers and service providers (e.g. Knapp et al., 2014; Mangalore and Knapp, 2007). Talking therapies for psychosis can reduce symptom impact and improve functioning, and may be of particular value for service users who experience limited benefit from antipsychotic medications (Burns, Erickson & Brenner, 2014; Morrison et al., 2014).

Cognitive behaviour therapy for psychosis (CBTp) is an adaptation of CBT for emotional disorders, tailored to the specific difficulties of people with psychosis. The evidence base continues to support recommendations for increased access to CBTp in international treatment guidelines (e.g. Gaebel, Riesbeck & Wobrock, 2011; United Kingdom National Institute for Health and Care Excellence (NICE), 2014), despite recent debate over the size of effects obtained in meta-analytic reviews (van der Gaag et al., 2014). However, access remains limited in frontline services (Schizophrenia Commission, 2012), and the high cost of training and supervising therapists in sufficient numbers to meet demand has led to evaluations of briefer, group-based, or more readily disseminable variants of CBTp, to improve the potential for cost-effective delivery (e.g. Waller et al., 2013). Evidence to date indicates a need for further development before such interventions can be routinely recommended (NICE, 2014).

Acceptance and Commitment Therapy (ACT) is a contextual cognitive behavioural intervention, with preliminary evidence of clinical and cost-effectiveness when delivered individually to people with psychosis (Bach, Hayes & Gallop, 2012; Gaudiano and Herbert, 2006; Ost, 2014; R. White et al., 2011). Rather than targeting particular appraisals, as in

traditional CBTp, ACT emphasises the person's relationship with their symptoms, aiming to promote non-judgmental acceptance of difficult mental events and to encourage behaviour that is consistent with the individual's personal values (Hayes, Strosahl & Wilson, 2011).

The ACT model is compatible with conceptualisations of recovery from severe mental illness (defined as "living a satisfying, hopeful and contributing life even with limitations caused by the illness", Anthony, 1993; and "having a sense of purpose and direction", Deegan, 1988), and therefore well-suited for people with psychosis. The focus on specific cognitive behavioural processes of mindfulness, acceptance, distancing, and values-based action makes ACT interventions typically brief (Bach and Hayes (2002) suggest four sessions); and mediation studies suggest that the positive clinical effects of ACT are achieved by changing these targeted psychological processes (R. White et al., 2011; Gaudiano, Herbert, & Hayes, 2010; Bach, Gaudiano, Hayes & Herbert, 2013; Zettle, Rains, & Hayes, 2011; Bacon, Farhall & Fossey, 2013). Furthermore, the explicit sharing of common human experience and the underlying transdiagnostic model lends ACT to group delivery (Morris, Johns & Oliver, 2013; Hayes et al., 2011), offering a potential route to improve group CBTp interventions. Group interventions are notionally a more efficient use of therapist time than individual work, and may confer additional benefits of social support from peers, normalising, and access to other perspectives (Walser and Pistorello, 2004; Ruddle et al., 2011).

The potential for cost savings, should a brief ACT group intervention be effective in promoting recovery from psychosis, is therefore considerable. No study to date has formally evaluated ACT groups for people with psychosis, although preliminary reports are encouraging (McArthur, Mitchell & Johns, 2013).

This study represents the first formal, albeit preliminary, investigation of ACT groups for individuals with psychosis. Following published guidance for the evaluation of complex interventions (Craig et al., 2008; Moore et al., 2014), our initial aim was to determine the feasibility and acceptability of delivering the intervention, in a group format, according to a standardised, manualised protocol, in routine community psychosis services in the United Kingdom. The second aim was to conduct a preliminary evaluation of potential clinical effects, to inform future development and randomized controlled evaluation. Finally, we wished to investigate change in ACT-relevant processes, and their influence upon clinical outcomes. We anticipated that participants would find the intervention acceptable, both in terms of general group factors and specific ACT processes. We hypothesised that, following the group, participants would report durable improvements in their daily functioning and their mood. We also hypothesized associated changes in the targeted psychological processes over the course of the group: reduced experiential avoidance (more acceptance), reduced cognitive ‘fusion’ (greater distancing from thoughts), and increased mindfulness.

2. Method

2.1 Participants

Recruitment took place through liaison with community mental health teams serving people with early and established psychosis, in the South London and Maudsley National Health Service Foundation Trust. Inclusion criteria were adult age range (18-65 years), a sufficient command of English to participate in groups without an interpreter, and persisting distress and/or difficulty reaching a life goal. Access to other services and routine care was unrestricted.

2.2 Measures

Demographic characteristics (age, service (early or established psychosis), gender and ethnicity (dichotomised into Black or Minority Ethnic (BME)/non-BME) were self-reported, supplemented by the clinical record. Feasibility and acceptability were assessed by attendance, completion rates, service user feedback and satisfaction ratings. Standardised measures were used to assess change in functioning, mood, and psychological flexibility.

2.2.1 Primary clinical outcome: functioning

This was assessed by the Sheehan Disability Scales (Sheehan, 1983), comprising self-reported functional impairment ratings from 0 (low impairment) to 10 (high impairment) in three domains: work/study, social life/leisure activities, and family life/home responsibilities. Total score was the outcome, ranging from 0 to 30. The scale has good construct validity, internal reliability and sensitivity to change (Sheehan and Sheehan, 2008; Leon et al., 1997); internal reliability in the current study was acceptable (Cronbach alpha = 0.7).

2.2.2 Secondary clinical outcome: mood

This was assessed by the Hospital Anxiety and Depression Scale (HADS, Zigmond & Snaith, 1983), comprising 14 questions, seven for anxiety and seven for depression, each self-rated from 0 (not at all) to 3 (most of the time), forming a total score ranging from 0 to 42, with higher scores indicating greater severity of emotional problems. The scale is well-established and psychometric properties, as reported by the authors, are good. In the current study, internal reliability was good (Cronbach alpha = 0.8).

2.2.3 Potential mechanisms of change

Participants' relationship with their symptoms was assessed using three measures of ACT-relevant processes. The Acceptance and Action Questionnaire (AAQ-II, Bond et al., 2011) is

a 7-item questionnaire designed to measure psychological flexibility. Respondents rate the degree to which each statement applies to them, from 1 (never true) to 7 (always true). Lower scores suggest greater acceptance of mental experiences and persistence with life goals in the face of these experiences (Range 7 to 49). The Cognitive Fusion Questionnaire (CFQ, Gillanders et al., 2013) is a 7-item scale designed to assess the extent to which a person's behaviour is overly regulated and influenced by (or 'fused' with) thoughts and mental events. Each statement is rated from 1 (never true) to 7 (always true); total scores range from 7 (low fusion) to 49 (high fusion). The Southampton Mindfulness Questionnaire (SMQ, Chadwick et al., 2008) is a 16-item scale that assesses an individual's relationship with distressing thoughts and images, and the degree to which the individual responds mindfully to distressing experiences, by noticing, accepting and allowing them to pass. Items are scored on a 7-point Likert scale, worded 'strongly disagree' (0) to 'strongly agree' (6); total scores range from 0 (not mindful) to 96 (very mindful). Psychometric properties for each scale are reported by the authors and are acceptable, and in the current study internal reliability was good to excellent (Cronbach alpha values of 0.9, 0.9 and 0.8 respectively).

2.2.4 Satisfaction

Participants completed an 8-item measure, based on the Client Satisfaction Questionnaire (CSQ-8, Larsen et al., 1979), following the group. Items were modified to increase specificity to the G-ACTp intervention, and following service user feedback. Item scores ranged from 1 (low satisfaction) to 4 (high satisfaction). Open-ended questions identified what participants liked most and least about the group, and suggestions for change.

2.3 Design

A within-participant pre-post design was employed (Figure 1). Baseline measures were

repeated at 0 (T0) and 4 weeks (T4), with a ‘taster’ meeting between to promote engagement. The intervention ran from 4 to 8 weeks, with a telephone booster session at ten weeks. The primary endpoint was follow-up at 20 weeks (T20), affording participants the opportunity to put skills into practice over a three-month period. Measures were also repeated immediately post-treatment at 8 weeks (T8). Assessments were self-report, completed with a trained research assistant, who was not involved in the delivery of therapy.

Figure 1 here

2.4 Procedure

Ethical approval was granted by the Outer West London Research Ethics Committee (Reference: 10/H0709/38). All participants gave written informed consent. Text and telephone reminders were given for all meetings. Participant travel expenses were reimbursed for attending the team base to complete the measures and to come to the group sessions.

2.4.1 ACT intervention

Consistent with the ACT model, the intervention was designed to promote psychological flexibility (a more accepting, mindful, and de-fused approach) in response to symptoms of psychosis and associated emotions/thoughts, in order to help the person act in accordance with their personal values. The manual was developed for UK community and inpatient settings over several years by the three lead authors (EM, JO and LJ), drawing on brief ACT interventions to reduce psychotic relapse (Bach & Hayes, 2002; Gaudiano & Herbert, 2006) and mindfulness groups for people with psychosis (Chadwick, Hughes, Russell, Russell & Dagnan, 2009). The manual (Oliver, Morris, Johns & Byrne, 2011) can be downloaded from the Association for Contextual Behavioral Science website (<http://tinyurl.com/ACT-for-Life>).

Workshop content comprised experiential exercises (e.g. brief mindfulness, Chadwick et al., 2009; defusion, Harris, 2009; values clarification, Hayes, Strosahl & Wilson, 1999) to highlight the processes by which participants may become inadvertently ‘caught up’ in struggling with their symptoms and distress and hence adopt ineffective ways of coping. Exercises were brief and learning points were carefully paced and scaffolded to accommodate any cognitive difficulties. Drawing on user feedback from previous, unevaluated, work, the ‘Passengers on the Bus’ metaphor (Hayes, Strosahl & Wilson, 1999, p157-158) formed a central theme, presented initially as a story, and later acted out by facilitators and participants. A scripted video of a character describing challenges in his life, played by an actor, was used to illustrate the real-world relevance and wide applicability of the metaphor. Particular attention was given to supporting practice outside workshops. At the close of each workshop, participants described the committed actions they were going to undertake during the week, which were reviewed in the following session, with an optional mid-week telephone reminder. This ‘check in’ phone call reinforced any noticing by participants of their internal experiences while they tried to engage in committed actions, and reminded them of the workshop skills to help them connect with personal values.

We ran 13 groups in total (seven in early and six in established psychosis services); each was closed and comprised 4-8 participants. The intervention comprised four two-hour skills-building workshops, held weekly. Workshops were facilitated by a lead therapist (EM, JO, or LJ) accompanied by one or two co-facilitators, who were all mental health practitioners experienced in working with people with psychosis, and who had attended an ACT training event designed for the study. As it is possible to gain benefit from a single session of ACT

(Strosahl, Robinson & Gustavsson, 2012), all participants starting the intervention were considered to be completers.

2.4.2 Adherence to the intervention

Facilitators followed a detailed, session-by-session semi-scripted protocol, and attended supervision and adherence meetings before and after each session, as well as monthly group supervision with a lead therapist. Adherence was rated by each facilitator immediately after every session, using a ten-item checklist of ACT-consistent and ACT-inconsistent items (Morris, 2013), rated by each facilitator from 0 (Absent) through 1 (Present to some degree) to 2 (Present as planned). Inter-rater reliability between paired facilitators was moderate (Kappa = 0.57, $p < .001$). Mean ACT consistency and inconsistency ratings were 1.7 (range 1.1 to 2) and 0.15 (range 0 to 0.8), respectively, indicating high adherence. Consent to audio-record workshops was given by only one group of participants. Two independent ACT experts rated the audiorecordings, and their scores showed good agreement with facilitator ratings (Kappa = 0.56, $p < .0001$; rating variation: consistency ≤ 0.1 points, inconsistency ≤ 0.3 points).

2.5 Analysis

Only participants commencing the intervention and attending at least one workshop were included in the analysis (completers, $n=69$). Completers did not differ from dropouts (those attending an assessment but no intervention, $n=14$) on Age, Service, Gender or Ethnicity (p values all > 0.1). Questionnaire completion was monitored during assessments by the independent assessor to avoid missing data points so prorating was not required. A total of 30 participants could not be followed up at one or more assessment points, but all 69 participants completed at least one full baseline assessment (T0: $n=63$; T4: $n=63$; T0 and T4: $n=57$), and

all but four completed a full post-treatment assessment (T8: n=59; T20: n=57). Missing data may potentially lead to biased estimates of the treatment effect. A recommended way (White, Hornton, Carpenter & Pocock, 2011) to reduce possible bias is to analyse all the observed outcome data using a mixed model via the maximum likelihood method under a plausible missing data mechanism. We screened for potential predictors of missingness using a series of random intercept logistic regression analyses (Stata version 12, Statacorp, 2011). We investigated Time, Age, Service (Early/Established Psychosis), Gender and Ethnicity (BME/non-BME), as potential predictors of missingness, but none was found to predict missingness significantly.

We analysed all the observed outcome data using a mixed model via the maximum likelihood method. Change in primary (Functioning), secondary (Mood) and process outcomes (Acceptance, Fusion, Mindfulness) was estimated using five separate three-level linear mixed models, with each outcome at T0, T4, T8 and T20 as the respective repeated measures. No significant change in primary outcomes was found between the two baseline time points (Functioning: Coeff.=-1.1, $z=-0.3$, $p=0.8$; Mood: Coeff.=-1.2, $z=-0.3$, $p=0.8$) and therefore, to maximize power, each analysis modeled baseline as an average of T0 and T4 (this increased the sample size for subsequent analyses by twelve participants (20%), and also provided a conservative estimate of change, as scores improved slightly from T0 to T4, possibly as a result of the introductory ‘taster’ session). Time was treated as a categorical fixed effect with three categories [baseline (T0 and T4), end of treatment (T8) and follow-up (T20)], with random clustering effects for treatment group (Group 1 through 13) and individual ID. The baseline category (average of outcome measures at T0 and T4) was treated as the reference, and dummy indicators for T20 and T8 were used to estimate mean outcome differences between follow-up and baseline and between T8 and baseline respectively (Table 3).

The association of change in clinical outcomes with change in ACT processes from T0 to T20, and any association of change with demographic or attendance variables, was assessed using Pearson correlations.

3. Results

3.1 Demographics and attendance

Of the 89 people who consented to take part in the study, 83 attended a pre-group assessment and were invited to attend an ACTp group. Of these, 14 did not attend any group sessions and were excluded from the analyses. Participants attended one of 13 groups, usually of five participants (median $n=5$; mode $n=5$; range: 4 to 8 participants). Demographic characteristics of the 69 completers, and sessional attendance, are shown in Table 1.

Table 1 here

3.2 Satisfaction/acceptability

The total mean satisfaction rating was 27.4 ($SD=3.6$; range:16-32, $n=58$), indicating high satisfaction. Mean ratings were >3 for each item. Feedback indicated three key positive aspects of the groups: i) attending a group intervention (e.g. “To know there are other people with the same problems; the interaction and sharing”); ii) specific ACT processes and exercises (e.g. “Doing the mindfulness exercises; acting out Passengers on the Bus”); and iii) the active nature of the group and focus on behavioural change (e.g. “Focusing on a direction I wanted to go in; it helped me to leave the house and go out”).

3.3 Clinical outcomes

Mean scores at each time point for the primary outcome of functioning and the secondary outcome of mood are presented in Table 2. Both showed significant improvement over time from baseline to follow-up (Functioning: Coeff.= -2.4, $z=-2.9$, $p=0.004$ (95% CI: -4.0 to -0.8); Mood: Coeff.= -2.3, $z=-3.5$, $p=0.001$ (95% CI: -3.5 to -1.0)). Within-subject effect sizes (ES) were small to medium (Table 2).

Table 2 here

3.4 Change in ACT processes

Table 2 shows the mean scores at each assessment on the measures of psychological flexibility. There were significant changes in the processes targeted by the intervention, with small to medium pre-post effects. Compared with baseline, participants showed reduced experiential avoidance/greater acceptance; reduced cognitive fusion; and increased mindfulness immediately after the group, all of which were maintained at post-treatment follow-up. Clinical outcomes showed significant changes at the post-treatment follow-up, rather than immediately after the group, for functioning, and at both time points for mood. Full results of the mixed models analyses are shown in Table 3. Table 4 shows the association of changes from T0 to T20 in functioning, mood and ACT processes. Changes in mood and functioning were associated with each other, and with each of the ACT processes, which were also inter-related. Changes were not related to age, workshop attendance, service, gender, or ethnicity, with the exception of a small association between functioning and service, such that early psychosis participants showed greater improvement ($r=0.3$, $p=0.02$; otherwise, r values all ≤ 0.2 , p values all ≥ 0.1).

Tables 3 and 4 here

4. Discussion

We set out to determine the feasibility and acceptability of delivering a brief group Acceptance and Commitment Therapy intervention for people with psychosis, to a standardised protocol, in a community mental health setting. We also wished to conduct a preliminary investigation of clinical effects, with a view to informing future development work and randomised, controlled evaluation, and to consider mechanisms of change.

The 89 participants were recruited over a 20 month period by a single research worker, in an inner-city, borough-based service, catering for a local population of around 280,000 people, and carrying a caseload of around 1,700 individuals with psychosis. Recruitment proceeded at a rate of 4-5 participants/month. Of all those agreeing to participate, 77% went on to attend a group, and 94% of these completed at least one follow-up assessment. Nevertheless, despite good overall retention, and notwithstanding the support and reminders to participants, attendance at each individual assessment and workshop was variable, and future studies will need to accommodate this in their design. Randomisation employing a control condition can impact adversely upon recruitment and retention rates: losses to follow-up of 20% of participants are not uncommon (e.g. Garety et al., 2008). This should be assessed in a pilot RCT, before a larger scale trial can be considered.

For attended assessments, completion of individual measures was good, with no missing data. However, active support from the assessor was required to explain measures, encourage completion, and point out any missed items. No particular measure was identified as consistently cognitively or emotionally demanding to complete, and the assessment battery could be completed in a single session, usually of 45-60 minutes with a short break. Participants highlighted the general focus on activity as a positive aspect of the study,

suggesting that the choice of primary outcome was fitting. However, we did not specifically collect feedback on assessments, and consultation to ensure that these capture the outcomes of most relevance to service users should be a key component of future studies.

We were successful in our manualisation of the intervention, and it was possible to deliver G-ACTp to a standardised protocol in a routine service setting. Independently-rated participant satisfaction was high and feedback was very positive. The short duration of the intervention and its focus on values-based living appealed to participants, who were very willing to work towards goals between sessions and to notice any difficulties they encountered. Participants noted several helpful aspects of the intervention: general group therapy factors; the mindfulness and ACT exercises; and the between-session committed actions.

Clinical outcomes improved from pre-post, with small to medium within-subject effects. Mean scores show small improvements during the anticipatory/engagement phase, which were augmented during treatment and either maintained or built upon at follow-up. The lack of immediate change in functioning is not surprising, given the brief, skills-building nature of the group, and is consistent with participants learning skills then putting them into practice. The amount of change achieved is smaller than the within-subjects change suggested by pre-post scores following ten sessions of individualised ACT (average effects around $d=0.7$, R. White et al., 2011). Between group effects from the same trial (average effects around $d=0.3$) cannot be directly compared with the present study without a control group, but highlight the potential for effects in a future RCT to be substantially smaller than those reported here. A pilot RCT is the necessary next step to test this, and may indicate the need for further development work prior to subsequent evaluations.

In terms of the potential to improve cost-effectiveness, each course of G-ACTp required eight hours of face to face contact for two trained therapists (16 hours) to treat, on average, five participants. The individual ‘taster’ meeting and telephone booster together took up to an additional hour of one to one therapist contact totaling just over four hours per participant, increasing to almost six hours if a third facilitator attends the group. This compares well to the therapist time per participant in a ten session individual intervention, particularly as co-facilitators can be more junior (and therefore less expensive) staff. A formal evaluation of service use is a priority for future research.

In terms of processes of change, participants reported responding more mindfully to distressing experiences, rather than getting caught up with or avoiding them. Changes in all the ACT-relevant psychological processes targeted during the intervention followed the pattern of change in clinical outcomes, consistent with a mediating role. Changes are correlated, and justify a fuller investigation of mediation effects employing a randomized controlled design. Again, an initial pilot study will usefully inform larger-scale process analysis, and may also highlight areas for clinical development to refine the intervention further, which will be essential if the present study’s pre-post effect sizes are not replicated.

Overall, results indicate that a pilot randomised controlled study would be feasible, and is a necessary next step in the evaluation and development pathway. The study should power for small to medium effects and a drop-out rate from the point of consent of around 25%. Until the evidence base is further developed, caution should be exercised regarding implementation: although our study has demonstrated feasibility and acceptability, its preliminary nature and uncontrolled pre-post design does not permit conclusions to be drawn regarding the clinical efficacy of the intervention.

4.1 Limitations

The main weakness of the study was the uncontrolled design. Participants may therefore have improved without any intervention. However, as the primary purpose of the study was to assess feasibility in a community setting, we consider this to be justified. The lack of a control condition meant that the assessor, although independent of therapy delivery, was aware that all participants had taken part in an intervention, and therefore assessments were not blind. Receipt of other interventions was unrestricted, and clinical improvement may be attributable to these, although the changes in ACT-specific processes suggests that at least some change can be attributed to the groups. The preliminary consideration of therapy processes, while consistent with a mediation effect, cannot be considered to demonstrate mediation without a comparison control condition.

4.2 Conclusions

We found that it is feasible to run ACT groups for psychosis clients in routine community mental health services. These groups were acceptable to clients with early and established psychosis, and received high satisfaction ratings. Both functioning and mood improved, with medium effects. Consistent with the ACT model, clients reported increased psychological flexibility following the group. Results suggest that the ACT group intervention has the potential to be a helpful and easily accessible psychological treatment for this stigmatised client group. However, the study was preliminary and uncontrolled, and further treatment development work may be necessary if effects are not replicated in a subsequent randomized controlled evaluation. Our findings should not be interpreted as evidence to support routine implementation until a stronger evidence base can be established.

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Conflict of Interest

LJ, JO and EM provide training in ACT. JO and EM have chaired the British Association of Behavioural and Cognitive Psychotherapy ACT Special Interest Group. There are no other declarations of interest and no conflicts of interest.

The first author, on behalf of the authorship team, confirms that the manuscript has been read and approved by all named authors. There are no other persons who satisfy the criteria for authorship but are not listed. The order of authors has been approved by all of us.

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Table 1: Demographic characteristics of the sample and workshop attendance.

<i>Variable</i>	<i>Mean (SD)</i>
Age in years (range 19-55)	33.6 (11.2)
Workshops attended (range 1-4)	3.04 (1.0)
<i>Variable</i>	<i>Frequency (n, %)</i>
<i>Workshops attended</i>	
1	5 (7%)
2	16 (23%)
3	19 (28%)
4	29 (42%)
<i>Service</i>	
Established psychosis (recovery)	36 (52%)
Early intervention in psychosis	33 (48%)
<i>Gender</i>	
Male	40 (58%)
Female	29 (42%)
<i>Ethnicity</i>	
Black/Minority Ethnic (BME)	47 (68%)
Non-BME	22 (32%)

Table 2: Mean scores at each assessment on clinical outcomes and psychological flexibility.

	Assessment Mean (SD)				Pooled SD	Effect size
	T0 (n=63)	T4 (n=63)	T8 (n=59)	T20 (n=57)	T0 & T20 (n=51)	T0 to T20 (n=51)
Interference with Functioning	17.8 (7.0)	16.6 (7.6)	15.7 ¹ (7.6)	14.6** (8.1)	7.7	0.4
Mood	19.1 (7.9)	17.8 (7.5)	16.2** (7.0)	16.0** (8.1)	8.1	0.4
Experiential Avoidance	30.9 (11.9)	30.5 (11.6)	27.6 ¹ *** (10.1)	27.3** (11.1)	11.6	0.3
Cognitive Fusion	31.3 ² (10.3)	31.0 (9.9)	29.0 ¹ ** (9.0)	28.5** (9.8)	10.15 ⁴	0.3 ⁴
Mindfulness	40.8 (16.0)	43.0 ² (16.2)	48.0 ³ *** (15.6)	48.6*** (19.0)	17.8	0.4

Key: SD: Standard deviation; T0 = 0 weeks (intake), T4 = 4 weeks (pre-intervention), T8 = 8 weeks (post-intervention); T20 = 20 weeks (follow-up 3 months post-intervention).

*Significance compared to average baseline (T0 and T4): *p <.05; ** p <.01; ***p<0.001 (see Table 3). ¹n=60; ²n=62; ³n=61; ⁴n=50.*

Table 3: Changes over time in clinical outcomes and psychological flexibility from baseline to post-treatment (T8) and follow-up (T20).

Predictor	Time	Coefficient	SE	z score	p	95% CI
Interference with Functioning	T8	-1.4	0.8	-1.75	0.08	-3.0 to 0.2
	T20	-2.4	0.8	-2.9	0.004	-4.0 to -0.8
Mood	T8	-1.9	0.6	-2.9	0.004	-3.1 to -0.6
	T20	-2.3	0.7	-3.5	0.001	-3.6 to -1.0
Experiential Avoidance	T8	-3.6	0.9	-4.1	<0.001	-5.2 to -1.9
	T20	-3.0	0.9	-3.4	0.001	-4.7 to -1.3
Cognitive Fusion	T8	-2.4	0.8	-3.0	0.003	-4.0 to -0.8
	T20	-2.6	0.8	-3.1	0.002	-4.2 to -1.0
Mindfulness	T8	6.4	1.4	4.6	<0.001	3.6 to 9.1
	T20	6.8	1.4	4.7	<0.001	4.0 to 9.6

Key: T8: post-treatment; T20: follow-up; SE: Standard Error. Analyses control for the random clustering effects of group and individual.

Table 4: Associations between change over time in clinical outcomes, psychological flexibility and valued living (n=51).

	Functioning	Mood	Experiential Avoidance	Cognitive Fusion ¹
Mood	0.5, p=0.001	-	-	-
Experiential Avoidance	0.3, p=0.02	0.5, p<0.001	-	-
Cognitive Fusion ¹	0.3, p=0.05	0.4, p=0.002	0.5, p<0.001	-
Mindfulness	0.3, p=0.05	0.4, p=0.001	0.2, p=0.08	0.6, p<0.001

Key: NS: non-significant, $p > 0.1$; ¹n=50; Bonferroni corrected significance level: $0.05/35=0.0014$)